

# METHOD FOR MEASUREMENT OF PITCH IN METROLOGY AND IMAGING SYSTEMS

## ABSTRACT OF THE DISCLOSURE

5 In accordance with an embodiment of the invention, a method for measuring  
pitch in data obtained from metrology and imaging systems is provided. A data set from a  
metrology or imaging instrument is obtained. The data set is converted into digital format if  
not already in that format. The digitized data set is mapped into a one-dimensional profile  
10 data if the digitized data set is not already one-dimensional. The one-dimensional profile  
data denoted by  $f(x)$  is a function of  $x$  position values corresponding to equally spaced or  
nearly equally spaced pixels. A criteria function  $g(T)$  is constructed as a one-dimensional  
data array from the profile data  $f(x)$  or any of its derivatives and a translation of the profile  
data  $f(x)$  denote by  $f(x+T)$  or any of its derivatives. Here,  $T$  represents the amount of  
translation, and  $g(T)$  is a function of  $T$  translation values corresponding to equally spaced or  
nearly equally spaced pixels. A value of translation  $T$  is then determined either as a whole  
pixel or with subpixel interpolation such that the magnitude of  $g(T)$  would be either a  
maximum or a minimum whichever appropriate at said value, wherein the determined value  
is not zero. The determined value is then reported as the pitch in the data set.